REMARKS

This amendment is responsive to the final Office Action mailed July 9, 2009. Applicants respectfully request reconsideration of the application in view of the foregoing amendments and the following remarks. No new matter has been added.

Claim Amendments

Claim 1 has been amended to clarify that the step of allocating working paths and spare capacity refers to determining an allocation of working paths and spare capacity, rather than a physical placement of working paths and spare capacity.

Claim Rejections

In the Office Action, Claims 1-4, 6-10 and 12-13 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Grover (U.S. Patent No. 6,421,349). Applicants respectfully traverse this rejection.

Grover does not disclose selecting a set of candidate cycles for forming into pre-configured cycles before determining an allocation of working paths and spare capacity in the mesh telecommunications network, the set of candidate cycles comprising a ranked sub-set of the multiple cycles, and determining an allocation of working paths and spare capacity in the mesh telecommunications network based on the set of candidate cycles.

Grover describes two different ways (IP-1 and IP-2) to connect the spare capacity in cycles.

In IP-1, the working capacity and spare capacity configuration is a given. See, for example, Col. 8, line 30: "...the network spare capacity is already given, the following formulation optimizes the PC design within the given set of existing spares ...", and in general the discussion at Col. 8, line 27, to Col. 9, line 8, where the working links and spare links are

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taken as fixed. IP-1 finds a connection of spare links that optimizes the configuration of protection cycles.

In IP-2, while the spare capacity is permitted to be determined in the pre-configuration pattern, the working capacity is fixed in the same manner as in IP-2. Hence, in either case, there is no "determining an allocation of working paths and spare capacity in the mesh telecommunications network based on the set of candidate cycles," as claimed in claim 1.

As noted in paragraph 2 of the instant disclosure as filed, these formulations generate "large problem files that can be difficult to solve optimally . . . especially . . . when the jointly optimized problem . . . is attempted." Accordingly, Grover proposes a non-optimal heuristic to find suitable pre-configured cycles of spare capacity.

In Grover, the non-optimal heuristic is a distributed algorithm (DCPC) for finding a set of pre-configured cycles. In the DCPC algorithm, discussed in some detail at Col. 10, line 66 and following, the working and spare capacity is a given and so there is no "determining an allocation of working paths and spare capacity in the mesh telecommunications network based on the set of candidate cycles," as claimed in claim 1. Rather, in DCPC, a statelet traverses a network from node to node, acquiring, as it goes, information on the network (see, e.g., Col. 12, lines 35-55), until it reaches the node (originating node) it started from (Col. 13, lines 22-32), whereupon the information gained by the statelet as it traverses the network, and other statelets arriving at the originating node, is used to establish a restoration path or pre-configured cycle (Col. 13, lines 32-42). The DCPC algorithm thus takes a given set of working links and spare links and finds cycles within those existing links. The design is a heuristic and is not optimum (Col. 11, lines 4-9).

In the present invention as claimed in claim 1, the candidate cycles are found first ("selecting a set of candidate cycles for forming into pre-configured cycles before determining an

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allocation of working paths and spare capacity in the mesh telecommunications network") and then working capacity and spare capacity is allocated based on those candidate cycles ("determining an allocation of working paths and spare capacity in the mesh telecommunications network based on the set of candidate cycles"). By selection of candidate cycles before allocating working and spare capacity, optimization of the routing may be more readily achieved (see present disclosure as filed, at the end of paragraph 2) and thus allowing re-optimization of p-cycle networks in service (see present disclosure as filed, paragraph 9, line 3). Various methods may be used to select the candidate cycles.

In Grover, there is neither selection of candidate cycles before determining an allocation of working paths and spare capacity, nor determining an allocation of working paths and spare capacity to those cycles, nor does Grover teach or suggest such an approach. The Examiner has noted that Grover does not disclose selection of candidate cycles before allocation of working paths and spare capacity in the parts of Grover that the Examiner had previously quoted. However, in the present Office Action, the examiner argues that Grover teaches, in Col. 21, line 55, to Col. 23, line 44, performing simulation for selecting of candidate cycles for forming into pre-configured cycles before allocating working paths and spare capacity.

As claim 1 has been amended to make clear, claim 1 requires selecting a set of candidate cycles for forming into pre-configured cycles before determining an allocation of working paths and spare capacity, rather than actual provision of the working paths and spare capacity in a physical network. Col. 21, line 55, to Col. 23, line 44, of Grover discloses a simulated implementation of the method previously disclosed in Grover. The simulated network is simulated to already have spare capacity and the cycles found by the method are formed within the spare capacity already present in the simulated network (see Col. 22, line 50). The method was applied to a simulated network with an original sparing plan chosen before the method was

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applied (Col. 23, line 7), or to a simulated network with a modified sparing plan selected by the IP-2 method before the method of selecting candidate cycles was applied (Col. 23, line 1).

Nowhere does Grover disclose or suggest applying the DCPC method of selecting cycles to a simulated or real network with the working paths or spare capacity not already fixed, nor does Grover disclose or suggest applying the IP-2 method to a simulated or real network without the working paths already fixed. Thus Grover does not disclose selecting a set of candidate cycles for forming into pre-configured cycles before determining an allocation of working paths and spare capacity, as the allocation of working paths and spare capacity is *already determined* when candidate cycles are selected.

The Examiner argues that it would be obvious to simulate a network before allocating working paths and spare capacity in order to simulate the projected consequences of multiple design options in the real world. Even if this were true (which applicant does not concede), it would not be obvious to simulate different allocations of working paths, as the general tendency would be to select working paths first ignoring considerations of sparing and then to designing sparing to protect the working paths. If a person of ordinary skill in the art were to simulate a network according to the teachings of Grover, before determining an allocation of working paths and spare capacity, they would follow the teachings of Col. 21, line 55, to Col. 23, line 44, of Grover, in which it is taught to apply the DCPC method to select candidate cycles to a simulated network already simulated as having fixed working paths and spare capacity. The person of ordinary skill in the art would then apply to the real network the working paths and spare capacity of the simulated network, and the results of the DCPC method on the simulated network. There is no teaching or suggestion in Grover as to allocating working paths in the mesh telecommunications network based on a set of candidate cycles or any benefits to be gained

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therefrom, and so the person of ordinary skill in the art would be unaware of any potential to gain from modifying the working paths to take advantage of the arrangement of spare capacity.

Consequently, the person of ordinary skill in the art would have no motivation to simulate different allocations of working capacity. The allocation of working capacity would be determined before the selection of candidate cycles.

CONCLUSION

Applicants submit the claims in this application are allowable over the prior art. For reasons discussed above, Claim 1 is allowable over Grover. All other claims are also in patentable condition, at least for their dependence on Claim 1. Issuance of a notice of allowance at a early date is respectfully requested.

Respectfully submitted,

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